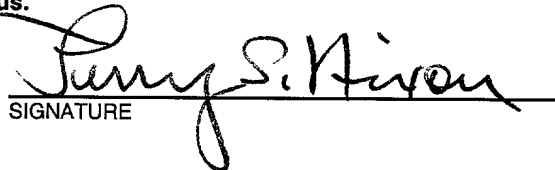


FORM PTO-1390 (REV 11-2000)	U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE	ATTORNEY'S DOCKET NUMBER <b>36-1501</b>
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>		U.S. APPLICATION NO. (If known, see 37 C.F.R. 1.5) <b>09/914261</b>
INTERNATIONAL APPLICATION NO. <b>PCT/GB00/00956</b>	INTERNATIONAL FILING DATE <b>15 March 2000</b>	PRIORITY DATE CLAIMED <b>24 March 1999 2 July 1999</b>
TITLE OF INVENTION  <b>COMMUNICATIONS SYSTEM</b>		
APPLICANT(S) FOR DO/EO/US  <b>MORRIS</b>		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information: <ol style="list-style-type: none"> <li><input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li><input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li><input checked="" type="checkbox"/> This is an express request to begin national examination procedures (35 U.S.C. 371(f). The submission must include items (5), (6), (9) and (21) indicated below.</li> <li><input checked="" type="checkbox"/> The U.S. has been elected by the expiration of 19 months from the priority date (Article 31).</li> <li>A copy of the International Application as filed (35 U.S.C. 371(c)(2)).             <ol style="list-style-type: none"> <li><input checked="" type="checkbox"/> is attached hereto (required only if not communicated by the International Bureau).</li> <li><input checked="" type="checkbox"/> has been communicated by the International Bureau.</li> <li><input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US).</li> </ol> </li> <li><input type="checkbox"/> An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).             <ol style="list-style-type: none"> <li><input type="checkbox"/> is attached hereto.</li> <li><input type="checkbox"/> has been previously submitted under 35 U.S.C. 154(d)(4).</li> </ol> </li> <li><input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)).             <ol style="list-style-type: none"> <li><input type="checkbox"/> are attached hereto (required only if not communicated by the International Bureau).</li> <li><input type="checkbox"/> have been communicated by the International Bureau.</li> <li><input type="checkbox"/> have not been made; however, the time limit for making such amendments has <b>NOT</b> expired.</li> <li><input type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li><input type="checkbox"/> An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</li> <li><input checked="" type="checkbox"/> An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</li> <li><input type="checkbox"/> A English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</li> </ol> <p><b>Items 11 To 20 below concern document(s) or information included:</b></p> <ol style="list-style-type: none"> <li><input type="checkbox"/> An Information Disclosure Statement under 37 C.F.R. 1.97 and 1.98.</li> <li><input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 C.F.R. 3.28 and 3.31 is included.</li> <li><input checked="" type="checkbox"/> A FIRST preliminary amendment.</li> <li><input type="checkbox"/> A SECOND or SUBSEQUENT preliminary amendment.</li> <li><input type="checkbox"/> A substitute specification.</li> <li><input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li><input type="checkbox"/> A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821-1.825.</li> <li><input type="checkbox"/> A second copy of the published international application under 35 U.S.C. 154(d)(4).</li> <li><input type="checkbox"/> A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).</li> <li><input type="checkbox"/> Other items or information.</li> </ol>		

U.S. APPLICATION NO. (if known, see 37 C.F.R. 1.5) <b>09/914261</b> <small>Unknown</small>		INTERNATIONAL APPLICATION NO. <b>PCT/GB00/00956</b>		ATTORNEY'S DOCKET NUMBER <b>36-1501</b>	
21. <input checked="" type="checkbox"/> The following fees are submitted:				<b>CALCULATIONS</b> PTO USE ONLY	
<b>BASIC NATIONAL FEE (37 C.F.R. 1.492(a)(1)-(5):</b> -- Neither international preliminary examination fee (37 C.F.R. 1.482) nor international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO .....\$1000.00 -- International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.....\$860.00 -- International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO.....\$710.00 -- International preliminary examination fee (37 C.F.R. 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4).....\$690.00 -- International preliminary examination fee (37 C.F.R. 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4).....\$100.00  <div style="text-align: right;"><b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b></div>				<div style="border: 1px solid black; padding: 2px;">\$ 860.00</div>	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 C.F.R. 1.492(e)).				<div style="border: 1px solid black; padding: 2px;">\$ 0.00</div>	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total Claims	8	-20 = 0	X \$18.00	\$ 0.00	
Independent Claims	1	-3 = 0	X \$80.00	\$ 0.00	
MULTIPLE DEPENDENT CLAIMS(S) (if applicable)			\$270.00	\$ 0.00	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				<b>\$ 860.00</b>	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				0.00	
<b>SUBTOTAL =</b>				<b>\$ 860.00</b>	
Processing fee of \$130.00, for furnishing the English Translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 C.F.R. 1.492(f)).				0.00	
<b>TOTAL NATIONAL FEE =</b>				<b>\$ 860.00</b>	
Fee for recording the enclosed assignment (37 C.F.R. 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 C.F.R. 3.28, 3.31). <b>\$40.00</b> per property				40.00	
Fee for Petition to Revive Unintentionally Abandoned Application (\$1240.00 - Small Entity = \$620.00)				0.00	
<b>TOTAL FEES ENCLOSED =</b>				<b>\$ 900.00</b>	
				Amount to be:	
				refunded \$	
				Charged \$	
a. <input checked="" type="checkbox"/> A check in the amount of \$900.00 to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. 14-1140 in the amount of \$_____ to cover the above fees. A duplicate copy of this form is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>14-1140</u> . A <u>duplicate</u> copy of this form is enclosed. d. <input checked="" type="checkbox"/> The entire content of the foreign application(s), referred to in this application is/are hereby incorporated by reference in this application.					
<b>NOTE: Where an appropriate time limit under 37 C.F.R. 1.494 or 1.495 has not been met, a petition to revive (37 C.F.R. 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</b>					
<b>SEND ALL CORRESPONDENCE TO:</b>  NIXON & VANDERHYE P.C. 1100 North Glebe Road, 8 <sup>th</sup> Floor Arlington, Virginia 22201-4714 Telephone: (703) 816-4000					
				 SIGNATURE	
				<b>Larry S. Nixon</b> NAME	
				<b>25,640</b> REGISTRATION NUMBER	
				<b>August 24, 2001</b> Date	

09/914261  
513 Rec'd PCT/PTO 24 AUG 2001

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

**MORRIS**

Atty. Ref.: **36-1501**

Serial No. **Unknown**

Group:

National Phase of: **PCT/GB00/00956**

International Filing Date: **15 March 2000**

Filed: **August 24, 2001**

Examiner:

For: **COMMUNICATIONS SYSTEM**

\* \* \* \* \*

**August 24, 2001**

Assistant Commissioner for Patents  
Washington, DC 20231

Sir:

**PRELIMINARY AMENDMENT**

Prior to calculation of the filing fee and in order to place the above identified application in better condition for examination, please amend the claims as follows:

**IN THE CLAIMS**

Please substitute the following amended claims for corresponding claims previously presented. A copy of the amended claims showing current revisions is attached.

3. (Amended) A method according to claim 1, including assigning a short dialling code to the commentary and establishing the connection in response to the said short code.

4. (Amended) A method according to claim 1, further comprising playing a first portion of commentary, and subsequently, in response to a signal generated by the mobile handset, playing a further portion of commentary.

6. (Amended) A method according to claim 1, including pausing the playback of the commentary in response to a signal generated by the mobile handset.

09/914261 PCT/PTO 24 AUG 2001

**MORRIS**  
Serial No. **Unknown**

7. (Amended) A method according to claim 1 including communicating to the mobile handset instructions for proceeding to a further location.

**REMARKS**

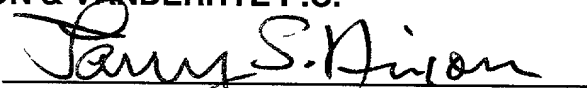
Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

The above amendments are made to place the claims in a more traditional format.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By:



**Larry S. Nixon**

Reg. No. 25,640

**LSN:Imy**

1100 North Glebe Road, 8th Floor  
Arlington, VA 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

3. (Amended) A method according to claim 1 [or 2], including assigning a short dialling code to the commentary and establishing the connection in response to the said short code.

4. (Amended) A method according to [any one of the preceding claims] claim 1, further comprising playing a first portion of commentary, and subsequently, in response to a signal generated by the mobile handset, playing a further portion of commentary.

6. (Amended) A method according to [any one of the preceding claims] claim 1, including pausing the playback of the commentary in response to a signal generated by the mobile handset.

7. (Amended) A method according to [any one of the preceding claims] claim 1 including communicating to the mobile handset instructions for proceeding to a further location.

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1

COMMUNICATIONS SYSTEM .

The present invention relates to a communications system, and in particular to a system designed to deliver an audio commentary, for example to visitors to a  
5 tourist attraction such as an historic building or a gallery.

It is common practice, at some tourist attractions, to provide visitors with a portable cassette player and a tape carrying a pre-recorded commentary. However, this imposes additional overheads on the site operator, and is not feasible for sites where visitors may be too small in number to justify the investment in equipment or  
10 staff.

According to a first aspect of the present invention there is provided a method of distributing an audio commentary for a site comprising:

loading the commentary on a telephony voice announcement platform remote from the site;

15 displaying at the site a telephone number for accessing the said commentary;  
in response to a call from a mobile handset to the said telephone number, establishing a connection to the telephony voice announcement platform and playing the audio commentary.

The present invention provides a method of delivering an audio commentary  
20 that removes entirely from the site operator the need to invest in and manage appropriate equipment. Instead the delivery of the commentary is provided as a service by a telephony network operator, or by a service provider connected to a telephony network. The service can be provided using the existing telephony infrastructure, and potentially with the resources of a single voice announcement  
25 platform being shared between a number of sites.

Preferably the method includes loading a plurality of different commentaries corresponding to different respective sites on the voice announcement platform and playing a commentary selected depending on the number dialled by the user.

Preferably the method includes assigning a short dialling code to the  
30 commentary and establishing the connection in response to the said short code.

This preferred feature enhances the ease of use of the system by providing a short code to be dialled by the visitor. The short codes may be programmed remotely by the service provider or network operator.

09/914261-002401

Preferably the method further includes playing a first portion of commentary, and subsequently, in response to a signal generated by the mobile handset, playing a further portion of commentary. Preferably the signal is a DTMF (dual tone multi frequency) tone.

5 This preferred feature gives the user additional control over the delivery of the commentary and can be used, for example, to provide separate commentaries for successive rooms of a building, or for different exhibits in a gallery. This control may be extended, for example, to allow the user to stop, rewind or fast forward the commentary.

10 Systems embodying the present invention will now be described in further detail, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a diagram showing schematically a system embodying the present invention;

15 Figure 2 shows an implementation of the system of Figure 1 in a network employing an IN (intelligent network) architecture;

Figure 3 shows an implementation of the system of Figure 1 using a switch-based voice announcement platform;

Figure 4 is a flow diagram showing the operation of the system of Figure 2;

20 Figure 5 is a flow diagram showing the operation of the system of Figure 3;

Figure 6 shows schematically a system using a PABX (private branch exchange).

25 As shown in Figure 1, a visitor to a site of interest uses a mobile telephone 1 to call a number 2a displayed in association with the site. The number might be shown, for example on a sign at the site, or in a map or guide book for the site. The call is connected through a cellular mobile network in a conventional fashion. The call is routed from a base station BS1 in the relevant cell via the cellular network to a  
30 gateway 3 to the public switched telephony network (PSTN). A circuit is established via a PSTN switch 4 to a voice announcement platform (VAN) 5. Suitable voice announcement platforms are available commercially from a number of manufacturers. For example, in the case of an implementation using an IN architecture, an Alcatel

1410 Intelligent Peripheral voice server may be used. In a switch based implementation, an Alcatel 1411 Digital Announcement Machine (DAM) may be used. The voice announcement platform is pre-programmed with digitised audio recordings of commentaries describing a number of sights. For example, commentary 1 is a  
 5 description of the architecture and history of a church at the site associated with number 2a, and commentary 2 is a description of another site having a different number 2b associated with it. In this example, the dialled number is forwarded to the voice announcement platform and is used in the platform to address a look-up table which correlates different called numbers and different commentaries. The  
 10 audio data for the respective commentary, in this case commentary 1, is then played via the telephony network to the user.

Figure 2 illustrates a first implementation of the invention in a network employing an IN (intelligent network) architecture. In this case the PSTN switch 4 of Figure 1 is an IN Service Switching Point (SSP) arranged to implement a Service  
 15 Switching Function (SSF). When a detection point at the SSP is triggered, for example as a result of the dialling of particular numbers such as the number of the voice announcement, the SSP suspends the basic switching function and communicates with a service control point (SCP) 22 that implements service control functions (SCF). The SCP 22 uses an Intelligent Peripheral (IP), in this case the  
 20 voice announcement platform, to implement the special resource functions necessary to play announcements to the user and to respond to DTMF tones from the user.

Figure 4 is a flow diagram illustrating the operation of the system of Figure 2. In step 4.1 a call is made by the user. This may be from another network, in which case the trigger is an Initial and Final Address Message received at the SSP. In  
 25 response (4.2), the switch sends an INAP (Intelligent Network Application Protocol) IDP (initial detection point) message containing the called and/or calling party numbers to the SCP. In step 4.3 the SCP addresses the look-up table to determine from the data in the IDP the identity of the appropriate announcement. A connection is established to the intelligent peripheral (step 4.4) and the announcement is played  
 30 (steps 4.5 and 4.6). The process may then be terminated by the user hanging up. Alternatively, after playing the first announcement the IP and SCP may continue to wait for a further signal, in the form of a DTMF tone from the user. When this is received in step 4.7, the IP returns a signal to the SCP (step 4.8). The service logic



in the SCP may be programmed to play a further announcement, or to carry out other functions, such as pausing a commentary, or rewinding and replaying a commentary that has previously been played. These options may be identified to the user as a menu of options , e.g. "dial \*1 to pause, \*2 to rewind, \*3 to step to next  
5 commentary" , at the beginning of the initial commentary.

Figure 3 illustrates a second embodiment of the invention using a voice announcement platform 32 implemented at a network switch 31. In use, this system dispenses with the INAP SSP to SCP and SCP to IP signalling of the first embodiment, but is otherwise similar in approach.

10 Figure 5 is a flow diagram illustrating the operation of the embodiment of Figure 3. In step 5.1 a call is made, either directly via an access network connected to the switch, or from another network. In this latter case an IFAM (initial and final address message) is passed to the switch. In step 5.2 the call is connected to the voice announcement system at the switch. The called party number received at the  
15 switch in the network setup signalling for the call is used to address a look-up table to determine the appropriate commentary in step 5.3. In step 5.4 the commentary is played to the user via the telephone network. The call may then be ended, or further commentaries may be played in response to DTMF control signals from the user (steps 5.5-5.6)

20 Although in the examples so far described, the information provided to the user has been in the form of a voice commentary only, in some implementations the audio data may be supplemented, for example, by web pages or other visual data. Also, the invention is not limited to use with cellular mobile networks. Figure 6 shows a further embodiment, in which the handsets are cordless telephones,  
25 conforming to the DECT (Digital Enhanced Cordless Telecommunications) standard that are used in conjunction with a fixed line PABX. In this example, the PABX is programmed to dial the full network number and commentary ID in response to a short dialling code being dialled by the user of one of the handsets. In other implementations, such as those described above with respect  
30 to Figures 1 and 2, short code dialling may be implemented as a network-based function.

Any of the systems described above may be used to implement more complex services based on the replay of commentaries. For example, the

commentary might provide instructions for a guided tour, with each section of commentary concluding with directions to the next site, or to a different part of the present site, together with an instruction to signal to the platform , e.g. with a DTMF tone, when the user reaches the next location. The paths for different users may be altered dynamically under the control of the service logic in order to control the flow of visitors around a site. This flow control module may be implemented, for example, as a service control function module such as that shown in dashed lines in Figure 2. This runs on a processor forming part of the SCP. For example, in a room with exits to the west and to the east, the default instruction might ask the user to proceed to the east. A count is maintained at the service platform of the number of users having been instructed to proceed to the east. If a threshold is reached such that overcrowding is likely to occur in the room to the east, then a subsequent user on reaching the end of the commentary for the room, is asked to go to the west. The service logic may cause a choice between two different fixed pre-recorded commentaries to be made at this point, one commentary for a route via the east room, another for a tour via the west room. Alternatively, or in addition, the instructions may be generated dynamically, for example using speech synthesis systems provided within the VAN platform.

## CLAIMS

1. A method of distributing an audio commentary for a site comprising:  
loading the commentary on a telephony voice announcement platform remote  
5 from the site;  
displaying at the site a telephone number for accessing the said commentary;  
in response to a call from a mobile handset to the said telephone number,  
establishing a connection to the telephony voice announcement platform and playing  
the audio commentary.
- 10 2. A method according to claim 1, including loading a plurality of different  
commentaries corresponding to different respective sites on the voice  
announcement platform and playing a commentary selected depending on the  
number dialled by the user.
- 15 3. A method according to claim 1 or 2, including assigning a short dialling code to  
the commentary and establishing the connection in response to the said short code
4. A method according to any one of the preceding claims, further comprising  
20 playing a first portion of commentary, and subsequently, in response to a signal  
generated by the mobile handset, playing a further portion of commentary.
5. A method according to claim 4, in which the signal is a DTMF (dual tone multi  
frequency) tone.
- 25 6. A method according to any one of the preceding claims, including pausing the  
playback of the commentary in response to a signal generated by the mobile  
handset.
- 30 7. A method according to any one of the preceding claims including communicating  
to the mobile handset instructions for proceeding to a further location.

- [illegible]

## ABSTRACT

## Communications System

An audio commentary, for example for a tourist site, is distributed by loading the  
5 commentary on a telephony voice announcement platform remote from the site, and  
subsequently playing the commentary to the user via a mobile telephone handset.  
Different commentaries may be stored on the platform, and an appropriate one of the  
commentaries selected depending on the number dialled by the user.

10 Figure 1

094231 03240  
04230 1924650

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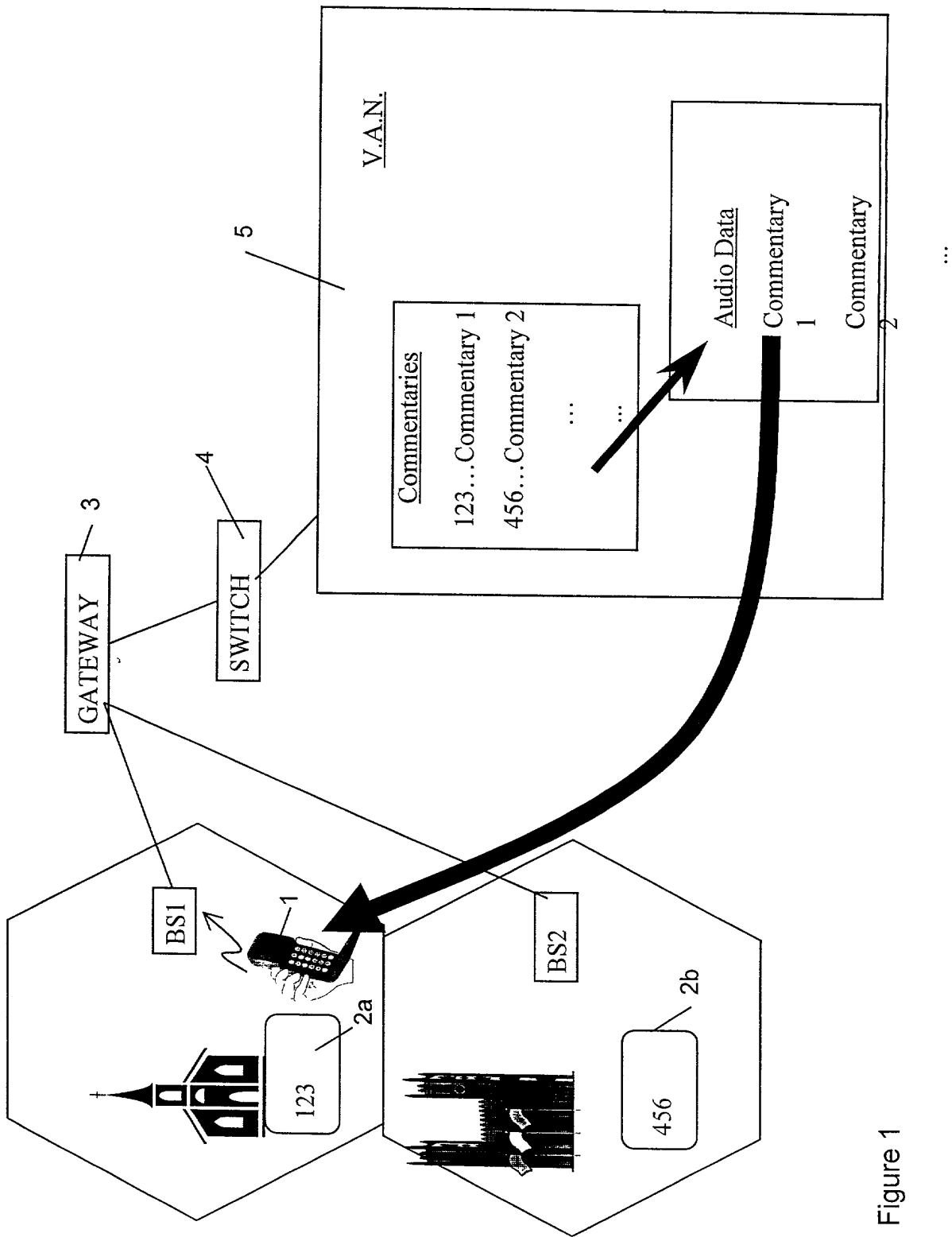


Figure 1

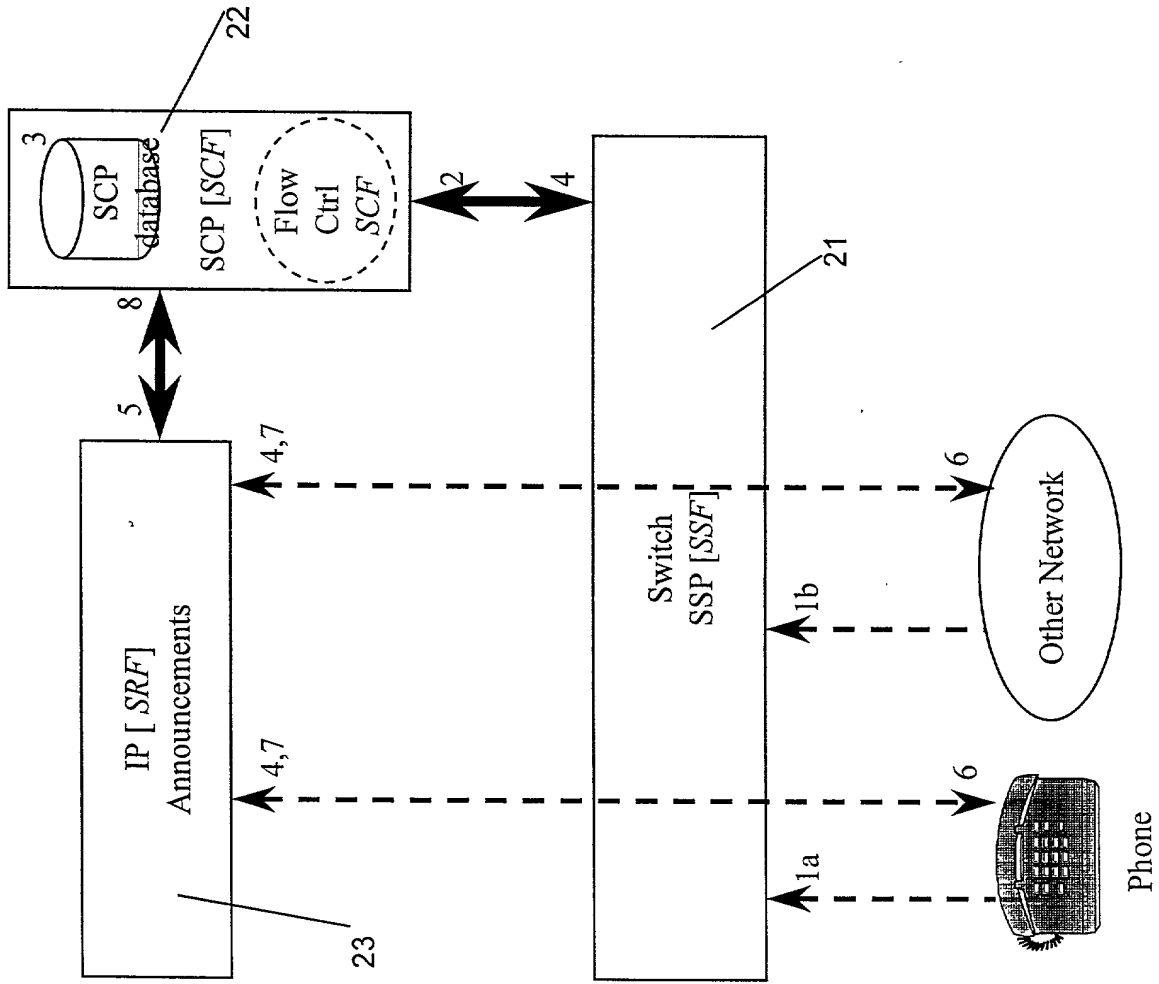


Figure 2

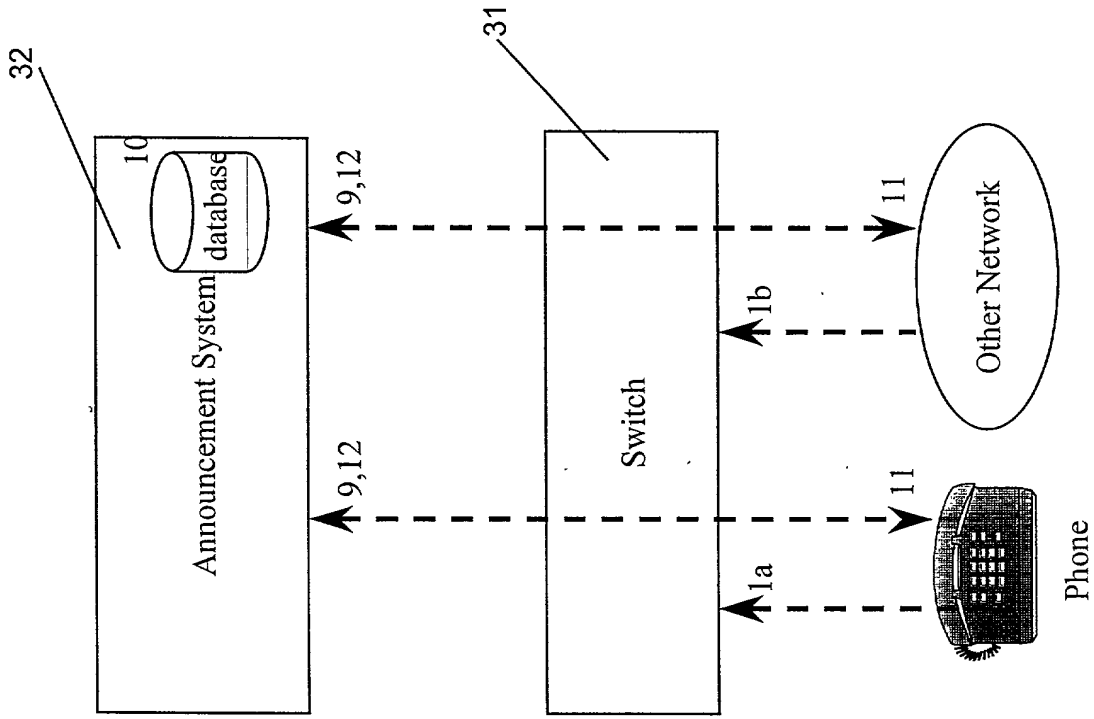
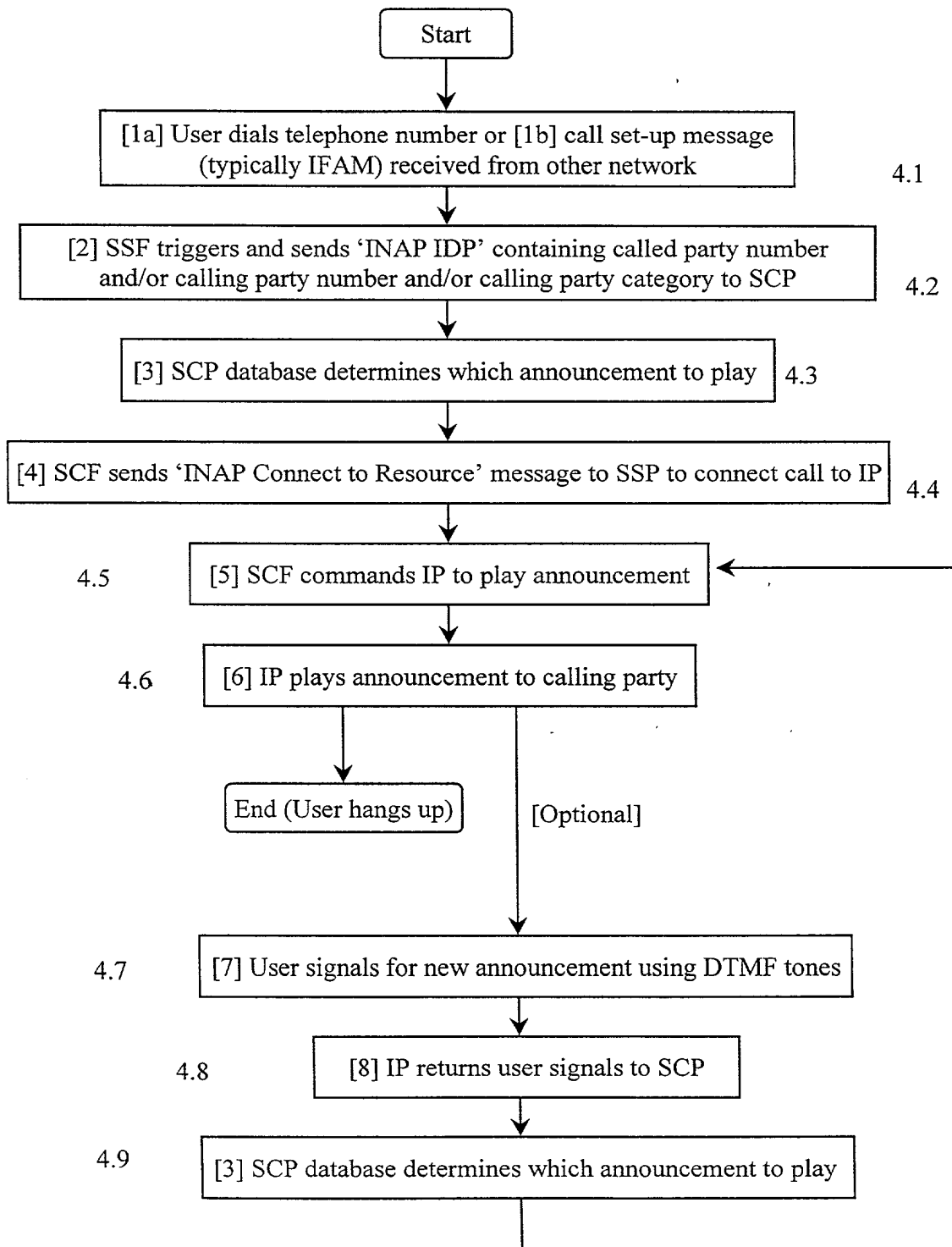


Figure 3



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5/6

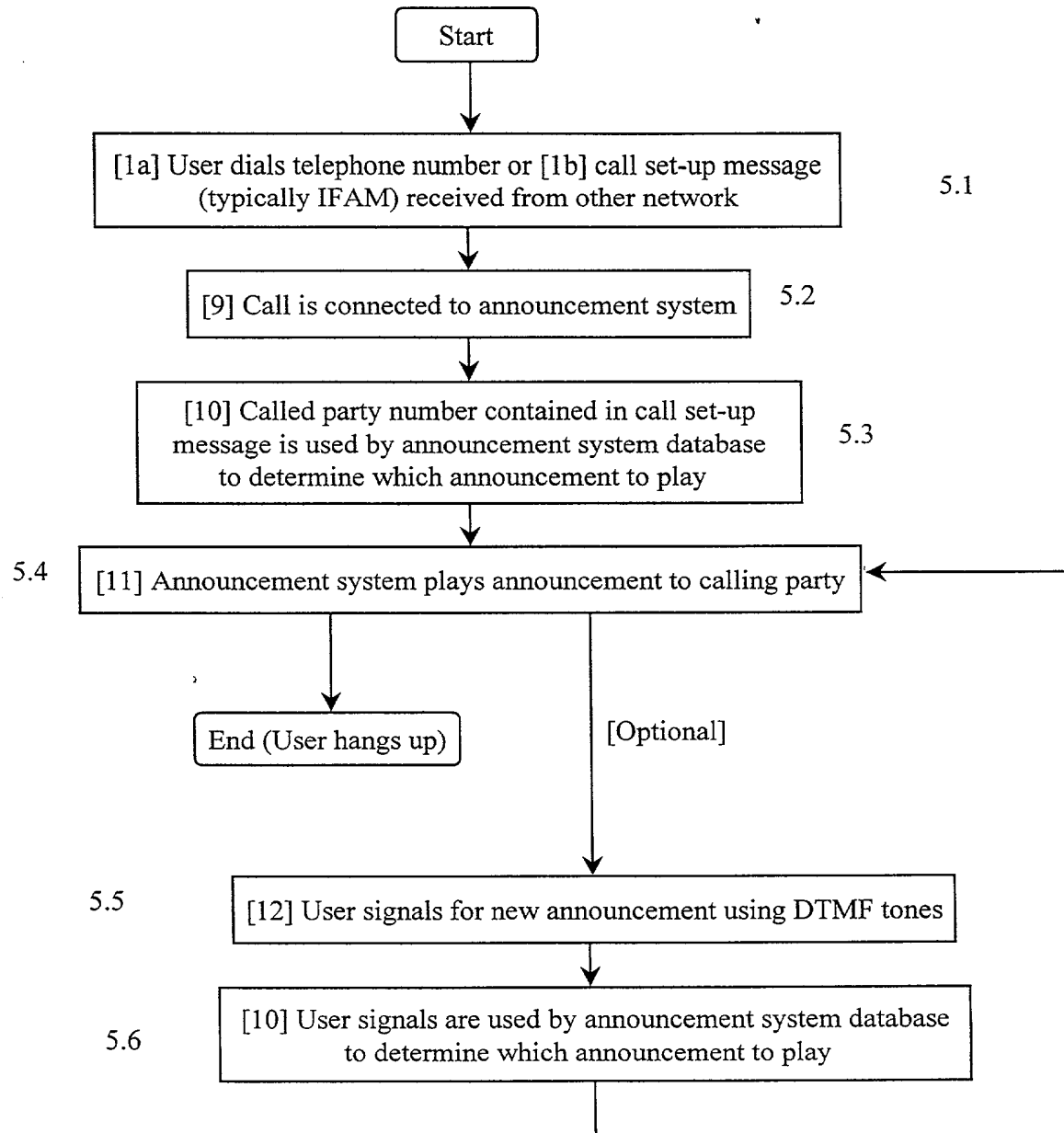


Figure 5

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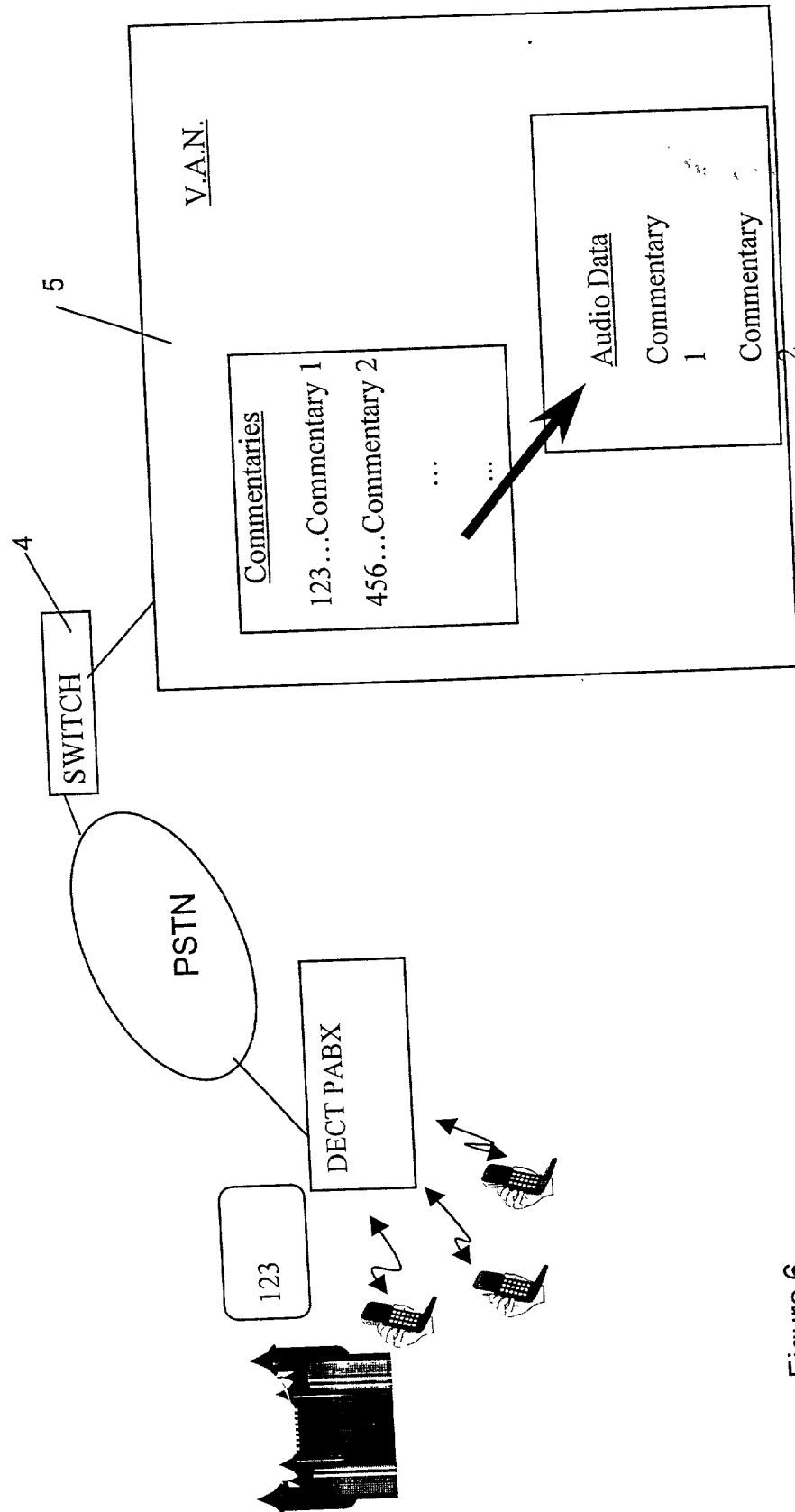


Figure 6

**RULE 63 (37 C.F.R. 1.63)**  
**DECLARATION AND POWER OF ATTORNEY**  
**FOR PATENT APPLICATION**  
**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

As a below named inventor, I hereby declare that my residence, post office address and citizenship are as stated below next to my name, and I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**COMMUNICATIONS SYSTEM**

the specification of which (check applicable box(es)):

- ☐ is attached hereto  
☐ was filed on

as U.S. Application Serial No.

(Atty Dkt. No. -)

☒ was filed as PCT International application No.

PCT/GB00/00956

on 15 MARCH 2000

and (if applicable to U.S. or PCT application) was amended on

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above. I acknowledge the duty to disclose information which is material to the patentability of this application in accordance with 37 C.F.R. 1.56. I hereby claim foreign priority benefits under 35 U.S.C. 119/365 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed or, if no priority is claimed, before the filing date of this application:

Prior Foreign Application(s):

Application Number	Country	Day/Month/Year Filed
9906830.6	GREAT BRITAIN	24 MARCH 1999
99305275.2	EUROPE	02 JULY 1999

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below.

Application Number	Date/Month/Year Filed
--------------------	-----------------------

I hereby claim the benefit under 35 U.S.C. 120/365 of all prior United States and PCT international applications listed above or below and, insofar as the subject matter of each of the claims of this application is not disclosed in such prior applications in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose material information as defined in 37 C.F.R. 1.56 which occurred between the filing date of the prior applications and the national or PCT international filing date of this application:

Prior U.S./PCT Application(s):

Application Serial No.	Day/Month/Year Filed
------------------------	----------------------

Status: patented  
pending, abandoned

PCT/GB00/00956	15 MARCH 2000	PENDING
----------------	---------------	---------

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon. And on behalf of the owner(s) hereof, I hereby appoint **NIXON & VANDERHYE P.C., 1100 North Glebe Rd., 8<sup>th</sup> Floor, Arlington, VA 22201-4714; telephone number (703) 816-4000 (to whom all communications are to be directed)**, and the following attorneys thereof (of the same address) individually and collectively owner's/owners' attorneys to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith and with the resulting patent: Arthur R. Crawford, 25327; Larry S. Nixon, 25640; Robert A. Vanderhye, 27076; James T. Hosmer, 30184; Robert W. Faris, 31352; Richard G. Besh, 22770; Mark E. Nusbaum, 32348; Michael J. Keenan, 32106; Bryan H. Davidson, 30251; Stanley C. Spooner, 27393; Leonard C. Mitchard, 29009; Duane M. Byers, 33363; Jeffry H. Nelson, 30481; John R. Lastova, 33149; H. Warren Burnam, Jr., 29366; Thomas E. Byrne, 32205; Mary J. Wilson, 32955; J. Scott Davidson, 33489; Alan M. Kagen, 36178; Robert A. Molan, 29834; B. J. Sadoff, 36663; James D. Berquist, 34776; Updeep S. Gill, 37334; Michael J. Shea, 34725; Donald L. Jackson, 41090; Michelle N. Lester, 32331; Frank P. Presta, 19828; Joseph S. Presta, 35329. I also authorize Nixon & Vanderhye to delete any attorney names/numbers no longer with the firm and to act and rely solely on instructions directly communicated from the person, assignee, attorney, firm, or other organization sending instructions to Nixon & Vanderhye on behalf of the owner(s).

1-00  
Inventor's Signature: DAVID

Inventor:

DAVID

(first)

MI

MORRIS

(last)

Date: 22/6/00

GB

(citizenship)

Residence: (city)

IPSWICH

GBN

(state/country)

GREAT BRITAIN

Post Office Address:

64 ELDRED DRIVE, GREAT CORNARD, SUDBURY, SUFFOLK, GREAT BRITAIN

(Zip Code)

CO10 0YZ

2.

Inventor's Signature:

Inventor:

(first)

MI

(last)

(citizenship)

Residence: (city)

Post Office Address:

(Zip Code)

FOR ADDITIONAL INVENTORS, check box ☐ and attach sheet with same information and signature and date for each.